

IN THE CLAIMS:

1. (Currently Amended) A compression fitting for rigid or semi-rigid pipes composed of metal, rigid plastic material, or metal-plastic multi-layer, the compression fitting comprising:

an internal element onto which a pipe having a pipe wall is fitted, said internal element having ~~at least one circumferential groove~~ a plurality of axially spaced circumferential grooves,
5 said internal element having an external surface;

an external sleeve having a substantially cylindrical shape with a cylindrical inner surface and an external surface for positioning around a portion of pipe fitted on the internal element and for radial compression such that said external sleeve deforms the pipe, whereby the pipe wall adheres to the bottom of the grooves, wherein the width of each of said grooves is greater
10 than the thickness of the pipe wall and maximum depth of each of said grooves is equal to at least a quarter of the thickness of the pipe wall, said external surface of the external sleeve comprising ~~[[a]] circumferential protruding beads~~, each of said beads being aligned with each groove of said internal element ~~in an area corresponding with the groove of the internal element~~
with ~~interposition of~~ the pipe wall located between said internal element and said external
15 sleeve, the width of each of said beads being less than the width of each of the grooves of the internal element and the height of each of said beads being at least equal to the depth of each of the grooves, each of said beads receiving radial compression via a cylindrical wall such that each of said beads deforms the external sleeve with respect to its cylindrical shape, whereby a
20 ~~portion said external sleeve~~ portions of said cylindrical inner surface of said internal element has a reduced internal diameter, said ~~portion~~ cylindrical inner surface of said external sleeve and said

external surface of said internal element being in contact with the pipe, said external sleeve radially deforming the pipe wall to penetrate said grooves such that thickness of said pipe wall is not substantially reduced.

2. (Previously Presented) A fitting according to claim 1, wherein the height of the bead is between 1 and 1.5 times the depth of the groove.

3. (Previously Presented) A fitting in accordance with claim 1, wherein the width of the groove is about 1.5 times the thickness of the pipe.

4. (Previously Presented) A fitting in accordance with claim 1, wherein a plurality of grooves are axially spaced along the internal element.

5. (Previously Presented) A fitting in accordance with claim 1, wherein a seat is made at the bottom of the groove, in which an elastic seal ring gasket is positioned.

6. (Previously Presented) A fitting in accordance with claim 1, wherein axial holding means of the extremity of the sleeve with the internal element are provided, to identify their mutual positioning.

7. (Previously Presented) A fitting in accordance with claim 1, wherein the height of

said bead is 1.3 times the depth of the groove.

8. (Currently Amended) A compression fitting for pipes, the compression fitting comprising:

a pipe having a defined pipe wall;

an internal element having an external surface, said external surface defining at least one circumferential groove, said at least one circumferential groove having a defined center point;

an external sleeve having a substantially cylindrical shape with a defined cylindrical internal surface and a defined cylindrical external surface, said external sleeve being arranged around a portion of said pipe such that said pipe is located between said external sleeve and said internal element, said pipe being in contact with said external surface of said internal element and said cylindrical internal surface of said external sleeve, width of said groove being greater than thickness of said pipe wall, said groove having a maximum depth at least equal to a quarter of the thickness of said pipe wall, said cylindrical external surface of said external sleeve defining at least one circumferential protruding bead, said bead being aligned with said center point of said groove ~~in an area corresponding with said groove, width of said bead being less~~

~~than width of said groove,~~ height of said bead being at least equal to the depth of said groove, said bead being radially compressed such that said external sleeve are deformed, whereby a portion of said external sleeve deforms said pipe wall, said pipe wall engaging said groove to connect said pipe to said internal element.

9. (Previously Presented) A fitting in accordance with claim 8, wherein a portion of said external sleeve engages said internal element.

10. (Previously Presented) A fitting in accordance with claim 8, wherein the height of the bead is between 1 and 1.5 times the depth of the groove.

11. (Previously Presented) A fitting in accordance with claim 8, wherein the width of the groove is about 1.5 times the thickness of the pipe.

12. (Previously Presented) A fitting in accordance with claim 8, wherein a plurality of grooves are axially spaced along the internal element.

13. (Previously Presented) A fitting in accordance with claim 8, wherein a seat is made at the bottom of the groove, in which an elastic seal ring gasket is positioned.

14. (Previously Presented) A fitting in accordance with claim 8, wherein the height of said bead is 1.3 times the depth of the groove.

15. (Currently Amended) A method for producing compression fittings, the method comprising:

providing an internal element having an external surface, said external surface defining

at least one circumferential groove, said groove having a defined center point;

5 connecting a pipe to said internal element, said pipe having a defined pipe wall;

connecting an external sleeve to said pipe, said external sleeve having a defined inner cylindrical surface and a defined external cylindrical surface, said pipe being arranged between said inner cylindrical surface of said external sleeve and said external surface of said internal element, said pipe engaging said inner cylindrical surface of said external sleeve and said

10 external surface of said internal element, said external cylindrical surface of said external sleeve defining a circumferential protruding bead, said bead being located opposite said groove such that said bead is aligned with said center point of said groove, in an area corresponding with said groove, width of said groove being greater than thickness of said pipe wall, said groove having a maximum depth at least equal to a quarter of the thickness of said pipe wall, width of said bead being less than width of said groove, height of said bead being at least equal to the

15 depth of said groove;

compressing said bead such that said external sleeve is deformed, whereby a portion of said cylindrical surface of said external sleeve deforms said pipe wall, said pipe wall engaging said groove to connect said pipe to said internal element.

16. (Previously Presented) A fitting in accordance with claim 15, wherein a portion of said external sleeve engages said internal element.

17. (Previously Presented) A fitting in accordance with claim 15, wherein the height

of the bead is between 1 and 1.5 times the depth of the groove.

18. (Previously Presented) A fitting in accordance with claim 15, wherein the width of the groove is about 1.5 times the thickness of the pipe.

19. (Previously Presented) A fitting in accordance with claim 15, wherein a plurality of grooves are axially spaced along the internal element.

20. (Previously Presented) A fitting in accordance with claim 15, wherein a seat is made at the bottom of the groove, in which an elastic seal ring gasket is positioned.